AMENDMENTS TO THE CLAIMS

CLAIMS

1. (original) An optical fiber communication system comprising:

silica fiber as a gain medium for Raman amplification to amplify a signal light;

a pumping light source that emits a pumping light that co-propagates through the silica fiber in the same direction as the signal light; and

a multiplexer disposed between the silica fiber and the pumping light source that multiplexes the signal light and the pumping light,

wherein the multiplexer is provided with a means to multiplex the signal light input thereto having a wavelength longer than the zero-dispersion wavelength of the silica fiber and the pumping light emitted from the pumping light source, and

the pumping light source is equipped with a means to emit pumping light, with the longest wavelength of the pumping light being shorter than the shortest wavelength of the signal light by a frequency difference on a low-frequency side of 13.7 to 30 THz.

2. (original) The optical fiber communication system in accordance with claim 1, wherein the silica fiber is a dispersion-shifted fiber, and the signal light comprises a plurality of wavelengths in the L band.

3. (original) The optical fiber communication system in accordance with claim 1, wherein the silica fiber is a non-zero dispersion-shifted fiber, and the signal light comprises a plurality of wavelengths in the C band.

4. (original) The optical fiber communication system in accordance with claim 1, wherein a remotely-pumped double-pass EDF module is provided at a signal light output stage of the silica fiber, and the wavelength of the pumping light is not less than 1430 nm and not more than 1470 nm.

5. (original) The optical fiber communication system in accordance with claim 1, wherein a remotely-pumped single-pass EDF module is provided at a signal light output stage of the silica fiber, and the wavelength of the pumping light is not less than 1440 nm and not more than 1470 nm.

6. (original) The optical fiber communication system in accordance with any one of claims 1 through 5, wherein the pumping light source is a laser diode with a fiber Bragg grating or a fiber laser.

7. (original) The optical fiber communication system in accordance with claim 2 or claim 3, wherein when the minimum value of the wavelength of the signal light is λs, the minimum value of the zero-dispersion wavelength of the silica fiber is λ_0, and the maximum value of the wavelength of the pumping light from the pumping light source is λp, the wavelength of the signal light, the zero-dispersion wavelength, and the wavelength of the pumping light are set so that $2\lambda_0 - \lambda s > \lambda p$.

8. (original) The optical fiber communication system in accordance with claim 7, wherein the pumping light source is a multiwavelength laser diode with a fiber Bragg grating or a Fabry-Perot laser diode, and the wavelength of the signal light, the zero-

dispersion wavelength, and the wavelength of the pumping light are set so that $2\lambda_0 - \lambda s > \lambda p + 10$.

9. (original) The optical fiber communication system in accordance with claim 7, wherein the pumping light source is a fiber Raman laser, a laser diode with a single-wavelength fiber Bragg grating, a laser diode with a multiwavelength fiber Bragg grating, or a Fabry-Perot laser diode, and the wavelength of the signal light, the zero-dispersion wavelength, and the wavelength of the pumping light are set so that $2\lambda_0 - \lambda s > \lambda p + 15$.

10. (amended) The optical fiber communication system in accordance with claim 8 ~~or claim 9~~, wherein the width of the multiwavelength is 10 nm or less.

11. (amended) The optical fiber communication system in accordance with claim 8 ~~or claim 9~~, wherein the pumping light source is provided with a variable attenuator on an output side of a polarization multiplexing Fabry-Perot laser diode to adjust an output of the pumping light from each Fabry-Perot laser diode.

12. (original) The optical fiber communication system in accordance with claim 2 or claim 3, wherein the optical fiber communication system has an erbium-doped fiber amplifier having:

an erbium-doped fiber gain block provided with erbium-doped fiber as a gain medium;

a gain equalization optical filter disposed before or after the erbium-doped fiber gain block;

a population inversion detection circuit that measures a population inversion amount in the erbium-doped fiber; and

a population inversion adjustment circuit that controls the erbium-doped fiber gain block so that the population inversion amount measured by the population inversion detection circuit is a prescribed value.

13. (original) The optical fiber communication system in accordance with claim 12, wherein the excited-state filling factor N_2 of the erbium-doped fiber is less than 38%.

14. (original) The optical fiber communication system in accordance with claim 2 or claim 3, wherein a power spectrum of the signal light is set so that the power of the signal light input to the silica fiber decreases the further to the short wavelength side where the Raman gain due to the Raman amplification is large.

15. (original) The optical fiber communication system in accordance with claim 1, wherein the silica fiber is silica fiber laid throughout a city.

16. (original) The optical fiber communication system in accordance with claim 1, wherein the silica fiber is silica fiber for lumped optical amplification.

17. (original) The optical fiber communication system in accordance with claim 1, wherein the wavelength of the signal light is a single wavelength, with the difference

between the wavelength of the signal light and the longest wavelength of the pumping light being, in terms of a frequency difference, 15.6 THz or more.

18. (new) The optical fiber communication system in accordance with claim 9, wherein the width of the multiwavelength is 10 nm or less.

19. (new) The optical fiber communication system in accordance with claim 9, wherein the pumping light source is provided with a variable attenuator on an output side of a polarization multiplexing Fabry-Perot laser diode to adjust an output of the pumping light from each Fabry-Perot laser diode.